

IN THE CLAIMS

Please cancel claims 1-8 and 11-17, without prejudice or disclaimer.

1.-8. (Canceled).

9. (Currently Amended) A distributed feedback type semiconductor layer diode comprising:

a semiconductor substrate;

an ~~AlGaInAs~~ optical guide layer formed on said semiconductor substrate, a diffraction grating having a phase shift region being formed between said semiconductor substrate and said ~~AlGaInAs~~ optical guide layer; and

a 1.0% or more compression-strained AlGaInAs multiple quantum well active layer formed on said AlGaInAs optical guide layer, wherein

$$\kappa L + 0.05 \cdot \Delta\lambda \geq \underline{3.4} \underline{3.0}$$

where κ is a coupling coefficient of said diffraction grating,

L is a cavity length of said diode, and

$\Delta\lambda$ is a detuning amount denoted by $\Delta\lambda = \lambda_g - \lambda$ where λ_g is a gain peak wavelength of said diode and λ is an oscillation wavelength of said diode.

10. (Currently Amended) A distributed feedback type semiconductor layer diode comprising:

a semiconductor substrate;

an ~~AlGaInAs~~ optical guide layer formed on said semiconductor substrate, a diffraction grating having a phase shift region being formed between said semiconductor substrate and said ~~AlGaInAs~~ optical guide layer; and

a 1.0% or more tensile-strained AlGaInAs multiple quantum well active layer formed on said AlGaInAs optical guide layer, wherein

$$\kappa L + 0.05 \cdot \Delta\lambda \geq \underline{3.4} \ \underline{3.0}$$

where κ is a coupling coefficient of said diffraction grating,

L is a cavity length of said diode, and

$\Delta\lambda$ is a detuning amount denoted by $\Delta\lambda = \lambda_g - \lambda$ where λ_g is a gain peak wavelength of said diode and λ is an oscillation wavelength of said diode.

11.-17. (Canceled).

18. (New) The distributed feedback type semiconductor laser diode as set forth in claim 9, wherein said optical guide layer comprises AlGaInAs.

19. (New) The distributed feedback type semiconductor laser diode as set forth in claim 10, wherein said optical guide layer comprises AlGaInAs.